

Black Mines in France.—It is reported that a company is about to be formed, for the purpose of working some rich mines in the neighbourhood of Lyons, the property of the House of Bourbon of Spain.

FROM THE 30TH OF JUNE, 1842, TO THE 30TH OF JUNE, 1843.

CORNWALL.

W. A. L. W. O.

Now transferred to the English Copper Company in the year.

Total In cwh.....0.00000000

Amount of money .. \$200,000 4 9 | Copper ore 100,000 25 00

*Copper ore purchased in Cornwall and Wales by the Copper Corporation,
from June 28, 1922, to June 28, 1923.*

Copper Ore Imported into the United Kingdom in the year ending June 30, 1902..... 22,224 tons. (p. 41)

1. *Costa Rica*

THE ENDLESS LADDER.

Black Tin purchased at Tiedtging's. — the hole is two feet wide, one foot

TOTALS.—Black tin, 548 tons.—White tin, 555 tons 14 cwt.
Money, £12,000 1s. 9d.

Tin imported into the United Kingdom in the year ending January 5, 1943—
555 tons 11 cwt. 2 qrs. 20 lbs.

Tin exported from the United Kingdom in the year ending 31st Dec. 1905.
 British tin, 3000 tons 3 cwt. 3 qrs. 9 lbs.; foreign tin, 620 tons 13 cwt.
 12 lbs.—Total, 3700 tons 16 cwt. 3 lbs.

With the view of placing before our readers the most accurate information respecting the actual state of the iron trade, we are endeavouring to procure returns from each district, and shall present them, as received, until the whole shall afford a complete list of furnaces, in and out of blast, with amount of weekly make, for the six months ending June 30, 1843.—

THE IRON TRADE.

On Thursday the Tivoli Works, carried on by Messrs. Early, stopped payment. Bailiffs for the judgment debtors, or the landlords, are in possession of the premises, and a fearful crisis seems approaching; by the unfortunate failure, a very large number of both iron and coalmen have been thrown out of employment. Although the amount of the liabilities of this firm is not known at present, it is said that Messrs. Dixon, of Dudley, bankers, are in advance to them about 13,000*l*, besides liabilities on running bills to a large amount. No hesitation is shown by any of the masters to acknowledge the difficulties they labour under, and a solemn belief appears to be spreading that "all must go." About West Bromwich, Hill Top, Great Bridge, &c., the men are gradually leaving work, and a general strike is evinced by the few employed to give up even a portion of their scanty pittance to relieve the unemployed. Mr. Atwood schemes for the equalization and improvement of the present wretched state of affairs throughout the mining and manufacturing districts is stated to be a plan to combine "all the various classes who are now seeking favored exports by different means in all parts of the United Kingdom one great legal confederation," and this "great legal confederation" is to make one general stand against Peel's Currency Bill. The full details of the proposed development of the plan is anxiously looked for, and it is to be hoped this, or some other well-organized scheme, may have the effect of securing the bonds which at present restrict our trade and commerce, and thus aid in the well-being of society at large.

The following exhibits the decrease of the make in South Staffordshire during the past three years:—

While the exportation to the United States of American has also increased, though not quite in so large a proportion.

STATE OF THE MINING DISTRICTS.

It is with great regret that we have to notice a state of depression
 other branches of trade immediately connected with mining operations,
 additions to that felt by the ironmasters, and those employed by them.
 Now appears that the copper smelters of South Wales have met, for some
 past, been in a much more favorable position than those whose capital
 embarked in the less trade; they have been very considerably less
 through, by keeping in their furnaces, have continued to give employment
 to the population around them; as, however, a much better state of the
 cannot be expected at once, they have at length been compelled to propose
 a reduction of wages of 12½ per cent., or, in the event of this proposal
 being agreed to, the only alternative would be the closing of some of
 furnaces. The workmen in the employ of Messrs. Virgin, Messrs. V
 Jones and Co., and Mr. Beeson, have agreed to the reduction, and there
 in some of the neighboring districts, considerable numbers hold out,
 hoped the knowledge that even the largest capitals must, in the end,
 under continued loss, and that it is not expedient, but their necessity, w
 has suggested the reduction, will induce the men to agree to the re
 proposed. The Rev. F. Davies, of Pwnteg Chapel, has exerted himsel
 the attempt to allay the angry feeling existing, and hearing of a meet
 on Saturday last, attended by several thousands, in the neighborhood
 Swansea, he immediately proceeded to the spot, and harangued the
 the Welsh language, with an touching appeal to their best feelings,
 showing them that their employers had ever been most liberal in their
 prosperity, that he was hailed with repeated cheers, and the multitude
 warmly returned to their houses, and resumed work on Monday.
 It scarcely requires to be hoped, that the men employed in the smelting works
 usually may have their attention called to the present unavoidable state
 things, and that, as no blame can be imputed to the masters, they may
 induced to wait with patience for a revival of their trade, and a consequ
 return to higher remuneration for their labors, and increased number
 themselves and families.—This, we intend to say, is one of the evils
 the new tariff.

It is with great regret that we have to notice a state of depression in her branches of trade immediately connected with mining operations, in addition to that felt by the ironmasters, and those employed by them. It is apparent that the copper smelters of South Wales have not, for months at least, been in a much more favorable position than those whose capital is sheltered in the iron trade; they have been very considerably hampered, by keeping in their furnaces, have continued to give employment to the population around them; so, however, a much better state of things must be expected at once, they have at length been compelled to prevent reduction of wages of 12½ per cent., or, in the event of this proposal not being agreed to, the only alternative would be the closing of some of the works. The workmen in the employ of Messrs. Vianin, Messrs. Williams and Co., and Mr. Bennett, have agreed to the reduction, and through some of the neighboring districts, considerable numbers have out, it is said the knowledge that even the largest capitals must, in the end, abide the commercial law, and that it is not capricious, but sheer necessity, which suggested the reduction, will induce the men to agree to the terms proposed. The Rev. F. Davies, of Pantre Chapel, has exerted himself to attempt to allay the angry feeling existing, and hearing of a meeting Thursday last, attended by several thousands, in the neighborhood of Swansea, he immediately proceeded to the spot, and harangued them in Welsh language, and as touching an appeal to their best feelings, and saying that their employers had ever been most liberal in times of scarcity, that he was hailed with repeated cheers, and the multitude gladly returned to their homes, and resumed work on Monday. It is really to be hoped, that the men employed in the smelting works generally may have their attention called to the present miserable state of affairs, and that, as no blame can be imputed to the masters, they may be induced to wait with patience for a revival of their trade, and a consequent rise in higher remuneration for their labor, and increased comfort to wives and families.—This, we cannot say, is one of the fruits of new tariff.

ON FURNACES AND BOILERS.

TO THE EDITOR OF THE MINING JOURNAL.

stion " (which would have had increased value had the writer affixed his real name to it), in which he puts the following queries:—1st. What does the boiler on his (Mr. C. W. Williams's) patent at Liverpool show? say, with the consumption of ten tons of coals, what weight of water is evaporated with his patent heated chamber flues.—2d. What amount, in weight of water is evaporated with the same quantity, without the patentee's improvements, on the old plan? "Investigator" avows his object to be the ascertaining the relative value of the old and new furnaces, yet both his queries directly apply to the evaporative powers of the boilers, as though the good or bad qualities of the latter had no effect on their amount of evaporation, apart from the good or bad qualities of the former. It is manifest he has not sufficiently attended to the necessary distinction between the functions of the furnaces and fuel, as generators of heat, and those of the boiler, as a generator of steam. These questions are the same as though he had asked, how many cubic feet of steam will an engine profitably employ, while the boiler will evaporate ten pounds weight of water? The appropriate answer would, in such case, be, that the question referred to the efficiency of the engine, and not to that of the boiler, which could not, therefore, be taken as a test of the latter; so, until we separate the evaporative, or heat-absorbing, faculties of the boiler from the heat-generating faculties of the furnaces and fuel, it is impossible to draw any inferences, either as to the one or the other, that can be depended on. The functions of the furnace are the generating of heat by aiding the process of combustion of the fuel it contains; those of the boiler are, the generating of steam, by absorbing and applying that heat, and thus aiding the process of evaporation.

That these functions are different, and often opposed to each other, will not be doubted. I have myself two boilers, one of which is capable of evaporating 20 per cent. more water with the same plan of furnace than the other—the reason being, that the one is capable of taking up and supplying more of the heat that is generated than the other, the excess, in the latter case, passing off by the chimney. This excess of heat, beyond what the boiler can take up, or retain, must be taken into account, as equivalent to so much additional water evaporated; otherwise, we may as well attempt to estimate the contents of an imperial gallon, by the quantity which can be retained in the old and smaller gallon measure, without taking into account the excess, which will necessarily flow over and be wasted. But why attempt to measure, or estimate, the capabilities of one class of vessels, by those of another and totally different class? The improvements of the boiler, and its evaporative powers, belong to a totally different class of conditions and principles, from the improvements in the furnace, and its power of aiding combustion. I undertake to show how more heat may be produced from any given weight of fuel, by an improved mode of introducing atmospheric oxygen to the combustible, but it is a very different matter to show how any given quantity of that heat can be most applied by a boiler. Seeing, also, the endless variety of boilers, many of them being constructed as though they were designed to prevent combustion, and to waste the heat, rather than apply it. I stand up in defence of the fuel and the furnace, and protest against their being visited with the sins of the boiler. I make the heat, says the furnace, but if the boiler waste it, why not put the saddle on the right horse? Let each be accountable alone for its own inefficiencies.

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If "Investigator" were desirous of ascertaining the relative merits of the old and new system of admitting air to furnaces, his queries, to have practical tendency, and that they should not deceive himself, should be shaped thus:—What quantity of heat will be generated in the "patent steam boiler," when the air is admitted on the new system, as compared with the old system of condensing the air to the ash pit? But if he resolved information as to the relative value of different kinds of boilers, his question should be—What quantity of water will be evaporated, and how much of the heat generated will escape, without aiding in the work of evaporation? Let us not, then, stultify ourselves, by taking the *Julier* as the test of the efficiency of *furnaces* or *fuel*, as though the former, as a matter of certainty, always absorbed the whole of the heat generated by the latter. The following experiments, most accurately made (several of them by Mr. Parkes), will, I trust, supply as much information as the state of his questions will admit, so that he will explain in what they fail to satisfy his object. By comparing the first, under the old system, with the others under the new system, the value of the latter may be ascertained.

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the old and new system of admitting air to furnaces, his queries, to have a practical tendency, and that they should not deserve himself, should be shaped thus:—What quantity of heat will be generated in the "patent sealed flues," when the air is admitted on the new system, as compared with the old system of confining the air to the ash pit? But if he required information as to the relative value of different kinds of boilers, his question should be:—What quantity of water will be evaporated, and how much of the heat generated will escape, without aiding in the work of evaporation? Let us not, then, stultify ourselves, by taking the *Butler* as the test of the efficiency of *Furnace or Fuel*, as though the former, as a better of certainty, always absorbed the whole of the heat generated by the latter. The following experiments, most accurately made (several of them by Mr. Parker), will, I trust, supply as much information as the state of his questions will admit, so that he will explain in what they fail to satisfy his object. By comparing the first, under the old system, with the others under the new system, the value of the latter may be ascertained.

designation as submitted.	Kind of coal used.	Mode of fract.	Size of specimen.	Weight of coal used.	Water of evaporation, p. lb. coal.	Water evapn. ratent.	Temper- ature, deg. F.
1	St. Helena.	Active.	Full size.	126*	0.12*	0.03*	513*
2	Do.	Do.	Do.	100	0.00	0.00	730
3	Do.	Do.	Do.	111	0.00	0.00	573
4	Do.	Do.	Do.	100	0.10	0.00	510
5	Do.	Do.	Do.	100	0.10	0.00	510
6	St. Helena.	Active.	Full size.	100	0.10	0.00	510
7	Do.	Do.	Do.	100	0.10	0.00	510
8	Do.	Do.	Do.	100	0.10	0.00	510
9	Do.	Do.	Do.	100	0.10	0.00	510
10	Do.	Do.	Do.	100	0.10	0.00	510
11	Do.	Do.	Do.	100	0.10	0.00	510
12	Do.	Do.	Do.	100	0.10	0.00	510
13	Do.	Do.	Do.	100	0.10	0.00	510
14	Do.	Do.	Do.	100	0.10	0.00	510
15	Do.	Do.	Do.	100	0.10	0.00	510
16	Do.	Do.	Do.	100	0.10	0.00	510
17	Do.	Do.	Do.	100	0.10	0.00	510
18	Do.	Do.	Do.	100	0.10	0.00	510
19	Do.	Do.	Do.	100	0.10	0.00	510
20	Do.	Do.	Do.	100	0.10	0.00	510
21	Do.	Do.	Do.	100	0.10	0.00	510
22	Do.	Do.	Do.	100	0.10	0.00	510
23	Do.	Do.	Do.	100	0.10	0.00	510
24	Do.	Do.	Do.	100	0.10	0.00	510
25	Do.	Do.	Do.	100	0.10	0.00	510
26	Do.	Do.	Do.	100	0.10	0.00	510
27	Do.	Do.	Do.	100	0.10	0.00	510
28	Do.	Do.	Do.	100	0.10	0.00	510
29	Do.	Do.	Do.	100	0.10	0.00	510
30	Do.	Do.	Do.	100	0.10	0.00	510
31	Do.	Do.	Do.	100	0.10	0.00	510
32	Do.	Do.	Do.	100	0.10	0.00	510
33	Do.	Do.	Do.	100	0.10	0.00	510
34	Do.	Do.	Do.	100	0.10	0.00	510
35	Do.	Do.	Do.	100	0.10	0.00	510
36	Do.	Do.	Do.	100	0.10	0.00	510
37	Do.	Do.	Do.	100	0.10	0.00	510
38	Do.	Do.	Do.	100	0.10	0.00	510
39	Do.	Do.	Do.	100	0.10	0.00	510
40	Do.	Do.	Do.	100	0.10	0.00	510
41	Do.	Do.	Do.	100	0.10	0.00	510
42	Do.	Do.	Do.	100	0.10	0.00	510
43	Do.	Do.	Do.	100	0.10	0.00	510
44	Do.	Do.	Do.	100	0.10	0.00	510
45	Do.	Do.	Do.	100	0.10	0.00	510
46	Do.	Do.	Do.	100	0.10	0.00	510
47	Do.	Do.	Do.	100	0.10	0.00	510
48	Do.	Do.	Do.	100	0.10	0.00	510
49	Do.	Do.	Do.	100	0.10	0.00	510
50	Do.	Do.	Do.	100	0.10	0.00	510
51	Do.	Do.	Do.	100	0.10	0.00	510
52	Do.	Do.	Do.	100	0.10	0.00	510
53	Do.	Do.	Do.	100	0.10	0.00	510
54	Do.	Do.	Do.	100	0.10	0.00	510
55	Do.	Do.	Do.	100	0.10	0.00	510
56	Do.	Do.	Do.	100	0.10	0.00	510
57	Do.	Do.	Do.	100	0.10	0.00	510
58	Do.	Do.	Do.	100	0.10	0.00	510
59	Do.	Do.	Do.	100	0.10	0.00	510
60	Do.	Do.	Do.	100	0.10	0.00	510
61	Do.	Do.	Do.	100	0.10	0.00	510

These experiments were all made in the same furnace and under the same boiler, and each occupied one hour, and show—

1. That the quantity of water evaporated by any given weight of fuel, furnishes no measure of the quantity evaporated in any given time, or the efficiency of any description of boiler.
2. That the quantity of water evaporated by each pound of coal is a very inadequate test of the quantity of heat given out by each coal, or the perfection of the means of combustion in the furnace; inasmuch as the steam generated is only in proportion to the heat below it by the water, and not to the heat generated from a coal.
3. That, as the weight of water evaporated per pound of coal bears no proportion to the weight of water evaporated per low-duties of fuel may, according to the construction of the boiler, be in a reverse ratio.
4. That the size, or area, of the furnace, or heating surface of the boiler, has no necessary connection with the heat-generating power of the coal—the latter depending on the construction of the furnace—the quantity and mode of admitting air and the rate of combustion, rather than on any ratio of proportions.
5. That the power of any description of coal, or furnace, should be tested by the quantity of heat produced: and the value of any kind of boiler, by the quantity of water evaporated. In representing on the first, we must be guided by the test—above given value; and in the second, by the quantity of steam supplied in any given time; each, however, should be tested by itself.

That, in attending the effort produced by any kind of coal or distillation of peat, we must take into account not only the weight of water evaporated, but also the temperature of the escaping products—the heat being lost by the chimney being as well utilized by the combustion as work done, by the coal, as that which comes into the boiler during the work of evaporation.

1. That, by the aid of the above experiments, in which the furnace was managed so that the quantity of heat generated, and water evaporated, in the furnace, is the same as that of a good wet steam boiler, having been made by the following means, and are the new economy, at 150° Fahrenheit, the following may be the result, as detailed, perhaps, at both the door and bridge end of the furnace.

C. W. WALLACE.

Library of, July 13.

[illegible]

be cost of labour, in both cases, to be equal, and the quantity of gas produced from each ton of coal to be similar—on that, leaving the first expense out of the question altogether, it is very plain that the cost iron returns are not only *smaller* than those of gas, but *expensive*, but capable of doing one-third more work.

Birmingham, July 25. CANTON.

[We readily accord with the views of "Cast-Iron," and we suggest, whether a lining, or coating, of fire-clay might not be adopted by the gas-makers, to adhere to the clay retorts. This would be a half measure, we admit, but it would tend to the increased use of iron—a matter of the first importance at the present moment.]

BLAENAVON IRON COMPANY—MR. T. DEAKIN

SIR,—I must acknowledge that I have been often amused by the multitudinous communications of your correspondent, "Thomas Deakin," who appears to me to occupy your valuable space, in unconsciously taking up the cudgels on all subjects, whether he has any knowledge, or scientific attainments, of that on which he writes. In all his letters, he perhaps, unwittingly—endeavors to show that every one lacks knowledge but himself; and, in doing so, unfortunately but procures his own ignorance. He has now been silent for some time, and I am not quite sure, that many of your readers regret his silence; but he being, as I understand, an agent of the Broomfield Iron Company, of which I am an unfortunate shareholder, I cannot help thinking, that he would do more to obtain creditable authority, by applying his scientific or practical knowledge to the well-being of the company, and devise some means for rescuing the works from utter ruin. Mr. Deakin may, perhaps, think that I interfere too much with him, or his pursuits, but I beg to remind him, that he has modified, and that rather roughly, with most of your able correspondents. But if Mr. T. Deakin has an itching for writing, and a wish further to address you, I hope he will learn to be less obstinate in the infallibility of his peculiar notions—have a little more respect for the opinions of men of generally acknowledged talent, and high standing in the scientific world—and attend more to the elucidation of scientific facts and practical improvements. By so doing, I am sure he will gain the good will and respect of his neighbors and your readers. A. K. L.

Albany, N. Y., July 24.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—As, with respect to immediate practical utility, some stars of the first magnitude are so high that they give but little light, "and as the present state of the two districts calls for reflection, as to how the demand for the metal may be forthwith increased, allow me, through your columns, to make a few suggestions, in the hope that others, better qualified for the work, will devote themselves to a matter worthy of the statesman, the philanthropist and the Christian. Many of our towns councils have long contemplated public works, in which large quantities of iron might be employed, such as bridges, sewers, fire-proof rooms for monuments, water reservoirs, &c., &c. Let the attention of municipal corporations be now called to the subject by the Secretary of State, as borough funds had far better be employed in that way than in police, to keep in order a starving people. As many of our colonies possess provincial funds, and crown lands for public improvements, involving the use of iron, let the governors and the Houses of Assembly be addressed on the subject by the Colonial Secretary. Suspension bridges, as I know from observation, might be erected without high piers, in consequence of the great heights of the opposite banks of deep rivers, and a friend of mine once projected a plan, drawn by me, for a suspension bridge from Cape Diamond (Quebec) to Pointe Lévis on the opposite side of the St. Lawrence, about three quarters of a mile! But, to be serious; whilst missionaries are losing their lives by swimming on horses across rapid streams, much might be done in the way of bridge building, especially as all our colonies are not wooded. In some of them cast-iron fencing would be a boon. Ships might take out iron instead of ballast, if our governors found a market for such purposes. A small increase of the stocks of colonial merchants would assist in the present emergency. Iron cast into ball for the Government would still be iron. Foreign Governments, for whom we have done much, might also assist until some steadier markets be found, by some new application of that of which we have now an over-production; and, indeed, a few millions had better be spent in preventing bridges, &c., to foreign princes, than in increasing a standing army, in anticipation of that worst of all rebellions, "the rebellion of the belly!"

ALFRED T. J. MARTIN.

TO THE EDITOR OF THE MINING JOURNAL.

at place, *Mail*, July 96. J. Munn

NECESSARY STATE OF OUR STEAM PACKET BOATS.—A correspondent, by date from Glenora, in Scotland, signed "Pro Bono Publico," and from him we have had several highly-interesting and valuable communications, which attract attention to the vast improvement in discipline, appointments, and general management of which our steam-packet navy is capable. His attention was drawn to the subject from the late lamentable loss of the *Popoia*, and, adding to the *Salway* and the *Perthshire*, and, from his own experience, is satisfied in asserting that many captains are unfit to be intrusted with a fleet of passengers, as regards energy, education, and nautical talents—especially from mere whim, raising the risk of dangerous reefs and rocky shoals, such as are in the neighbourhood of the Firth Islands, and often the dead hour of the night, and totally regardless of the safety of the numbers who have confided themselves to their care. He proposes that all sailing steam-vessels should be examined by fit officers, appointed under Government, as to their seaworthiness, and the quality of the officers and crew and a sufficiency of boats should, in every case, be on board for the number of the passengers and crews, and that safety swimming belts be also provided in abundance, which can be obtained at something like 1s. each, and if fifty of these belts on board on the last melancholy occasion, numbers of lives might have been saved. Under some such regulations, passengers of all ages would find more confidence in the situation of the vessel, and be prepared for any emergency; while, in the present time and inefficient manner in which our packets are managed, in case of danger, parties become paniced, and quite unable to act for the general safety. These suggestions, well as others which naturally arise from them, are certainly of much importance, and deserving of the serious consideration of parties concerned with our steam navy. —We believe some regulations were adopted by Government, as regards the seaworthiness of the vessels. We perfectly agree with our correspondent, that men, as well as vessels, require examination and supervision.

WIND AND LEAK DOOMED.—The circumstances attending the loss of the splendid and powerfully-built steam-ship *Columbia*, on the coast of Newfoundland, and those attending the still more extraordinary loss of the steamer *Keokuk*, which struck on the rocks of Pigeon Island, on her voyage from Leith Mail last week, and sunk almost immediately after in deep water, carry nearly the whole of the passengers and crew to the bottom, inasmuch as to both the following particulars of the escape of the iron steamer *Noronic*, in all respects injury, under similar circumstances. We are indebted for our particulars, which had rapidly escaped our compilation, to an unknown correspondent at White, in Boston, from whom we have just received a letter the subject of the iron steamer, used in the *Star Line*, and who, after detailing their performances, refers to the *Noronic* in the following terms: "The East India Company's war steamer, *Noronic*, of 1100 tons and 10000 power, sailed from England with twelve days' supply of coal, last winter's provisions for thirty days, and the lightest manilla, and so on, on a run of two days 22 pounds, being quite stiff, and deeply laden. She drew 24 ft. 6 in.; her draught, under ordinary circumstances, is nearly a foot less. During this run, off Leith, she ran over rocks, whilst going at nine or nine miles an hour. The damage she sustained amounted to a hole in the bow on the fore-foot, eight inches long, a plate in the main sheer-plate keel cut through, and other plating much indicated, so as to the extent of one and a half inches. She reached Portsmouth, where the whole damage required in a few days, at an expense of about £1000. These facts amply proved a remarkable contrast to the sad catastrophe which followed sinking of the *Popoon*.—*Star Line*.—(We are in communication with several parties on the subject of iron steamers, and hope, as we do, to give particulars to the results of our inquiries, and only as to their capacity, from the common anecdotal.)"

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